#7

SEQUENCE LISTING

<110> David Baltimore et al.

<120> NUCLEAR FACTORS ASSOCIATED WITH TRANSCRIPTIONAL REGULATION

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<140> 10/037341
<141> 2002-01-04

<150> 08/464364
<151> 1995-06-05

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<170> PatentIn version 3.1

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Met Val His Ser Ser Met Gly Ala Pro Glu Ile Arg Met Ser
1 5 10
aag ccc ctg gag gcc gag aag caa ggt ctg gac tcc cca tca gag cac 156
Lys Pro Leu Glu Ala Glu Lys Gln Gly Leu Asp Ser Pro Ser Glu His
15 20 25 30
aca gac acc gaa aga aat gga cca gac act aat cat cag aac ccc caa 204
Thr Asp Thr Glu Arg Asn Gly Pro Asp Thr Asn His Gln Asn Pro Gln
35 40 45
aat aag acc tcc cca ttc tcc gtg tcc cca act ggc ccc agt aca aag 252
Asn Lys Thr Ser Pro Phe Ser Val Ser Pro Thr Gly Pro Ser Thr Lys
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Ile Lys Ala Glu Asp Pro Ser Gly Asp Ser Ala Pro Ala Ala Pro Leu

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ccc cct cag ccg gcc cag cct cat ctg ccc cag gcc caa ctc atg ttg      348
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    80                  85                  90
acg ggc agc cag cta gct ggg gac ata cag cag ctc ctc cag ctc cag      396
Thr Gly Ser Gln Leu Ala Gly Asp Ile Gln Gln Leu Leu Gln Leu Gln
95                  100                 105                 110
cag ctg gtg ctt gtg cca ggc cac cac ctc cag cca cct gct cag ttc      444
Gln Leu Val Leu Val Pro Gly His His Leu Gln Pro Pro Ala Gln Phe
                115                 120                 125
ctg cta ccg cag gcc cag cag agc cag cca ggc ctg cta ccg aca cca      492
Leu Leu Pro Gln Ala Gln Gln Ser Gln Pro Gly Leu Leu Pro Thr Pro
            130                 135                 140
aat cta ttc cag cta cct cag caa acc cag gga gct ctt ctg acc tcc      540
Asn Leu Phe Gln Leu Pro Gln Gln Thr Gln Gly Ala Leu Leu Thr Ser
        145                 150                 155
cag ccc cgg gcc ggg ctt ccc aca cag gcc gtg acc cgc cct acg ctg      588
Gln Pro Arg Ala Gly Leu Pro Thr Gln Ala Val Thr Arg Pro Thr Leu
    160                 165                 170
ccc gac ccg cac ctc tcg cac ccg cag ccc ccc aaa tgc ttg gag cca      636
Pro Asp Pro His Leu Ser His Pro Gln Pro Pro Lys Cys Leu Glu Pro
175                 180                 185                 190
cca tcc cac ccc gag gag ccc agt gat ctg gag gag ctg gag caa ttc      684
Pro Ser His Pro Glu Glu Pro Ser Asp Leu Glu Glu Leu Glu Gln Phe
                195                 200                 205
gcc cgc acc ttc aag caa cgc cgc atc aag ctg ggc ttc acg cag ggt      732
Ala Arg Thr Phe Lys Gln Arg Arg Ile Lys Leu Gly Phe Thr Gln Gly
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gat gtg ggc ctg gcc atg ggc aag ctc tac ggc aac gac ttc agc cag      780
Asp Val Gly Leu Ala Met Gly Lys Leu Tyr Gly Asn Asp Phe Ser Gln
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acg acc att tcc cgc ttc gag gcc ctc aac ctg agc ttc aag aac atg      828
Thr Thr Ile Ser Arg Phe Glu Ala Leu Asn Leu Ser Phe Lys Asn Met
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tgc aaa ctc aag ccc ctc ctg gag aag tgg ctc aac gat gca gag act      876
Cys Lys Leu Lys Pro Leu Leu Glu Lys Trp Leu Asn Asp Ala Glu Thr
255                 260                 265                 270
atg tct gtg gac tca agc ctg ccc agc ccc aac cag ctg agc agc ccc      924
Met Ser Val Asp Ser Ser Leu Pro Ser Pro Asn Gln Leu Ser Ser Pro
                275                 280                 285
agc ctg ggt ttc gac ggc ctg ccc ggc cgg aga cgc aag aag agg acc      972
Ser Leu Gly Phe Asp Gly Leu Pro Gly Arg Arg Arg Lys Lys Arg Thr
            290                 295                 300
agc atc gag aca aac gtc cgc ttc gcc tta gag aag agt ttt cta gcg     1020
Ser Ile Glu Thr Asn Val Arg Phe Ala Leu Glu Lys Ser Phe Leu Ala
        305                 310                 315
aac cag aag cct acc tca gag gag atc ctg ctg atc gcc gag cag ctg     1068
Asn Gln Lys Pro Thr Ser Glu Glu Ile Leu Leu Ile Ala Glu Gln Leu
    320                 325                 330
cac atg gag aag gaa gtg atc cgc gtc tgg ttc tgc aac cgg cgc cag     1116
His Met Glu Lys Glu Val Ile Arg Val Trp Phe Cys Asn Arg Arg Gln
335                 340                 345                 350
aag gag aaa cgc atc aac ccc tgc agt gcg gcc ccc atg ctg ccc agc     1164
Lys Glu Lys Arg Ile Asn Pro Cys Ser Ala Ala Pro Met Leu Pro Ser
                355                 360                 365
cca ggg aag ccg gcc agc tac agc ccc cat atg gtc aca ccc caa ggg     1212
Pro Gly Lys Pro Ala Ser Tyr Ser Pro His Met Val Thr Pro Gln Gly
            370                 375                 380
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Gly Ala Gly Thr Leu Pro Leu Ser Gln Ala Ser Ser Ser Leu Ser Thr
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aca gct gga ggg ggt ggg ggc ggg ggc ggg gct gcg ccc ccc ctc aat     1356
Thr Ala Gly Gly Gly Gly Gly Gly Gly Gly Ala Ala Pro Pro Leu Asn
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tcc atc ccc tct gtc act ccc cca ccc ccg gcc acc acc aac agc aca     1404
Ser Ile Pro Ser Val Thr Pro Pro Pro Ala Thr Thr Asn Ser Thr
                435                 440                 445
aac ccc agc cct caa ggc agc cac tcg gct atc ggc ttg tca ggc ctg     1452
Asn Pro Ser Pro Gln Gly Ser His Ser Ala Ile Gly Leu Ser Gly Leu
            450                 455                 460
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Asn Pro Ser Thr
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            20                  25                  30

Thr Glu Arg Asn Gly Pro Asp Thr Asn His Gln Asn Pro Gln Asn Lys
        35                  40                  45

Thr Ser Pro Phe Ser Val Ser Pro Thr Gly Pro Ser Thr Lys Ile Lys
    50                  55                  60

Ala Glu Asp Pro Ser Gly Asp Ser Ala Pro Ala Ala Pro Leu Pro Pro
65                  70                  75                  80

Gln Pro Ala Gln Pro His Leu Pro Gln Ala Gln Leu Met Leu Thr Gly
                85                  90                  95

Ser Gln Leu Ala Gly Asp Ile Gln Gln Leu Leu Gln Leu Gln Gln Leu
            100                 105                 110

Val Leu Val Pro Gly His His Leu Gln Pro Pro Ala Gln Phe Leu Leu
        115                 120                 125

Pro Gln Ala Gln Gln Ser Gln Pro Gly Leu Leu Pro Thr Pro Asn Leu
    130                 135                 140

Phe Gln Leu Pro Gln Gln Thr Gln Gly Ala Leu Leu Thr Ser Gln Pro
145                 150                 155                 160

Arg Ala Gly Leu Pro Thr Gln Ala Val Thr Arg Pro Thr Leu Pro Asp
                165                 170                 175
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Pro His Leu Ser His Pro Gln Pro Pro Lys Cys Leu Glu Pro Pro Ser
            180                 185                 190

His Pro Glu Glu Pro Ser Asp Leu Glu Glu Leu Glu Gln Phe Ala Arg
        195                 200                 205

Thr Phe Lys Gln Arg Arg Ile Lys Leu Gly Phe Thr Gln Gly Asp Val
    210                 215                 220

Gly Leu Ala Met Gly Lys Leu Tyr Gly Asn Asp Phe Ser Gln Thr Thr
225                 230                 235                 240

Ile Ser Arg Phe Glu Ala Leu Asn Leu Ser Phe Lys Asn Met Cys Lys
                245                 250                 255

Leu Lys Pro Leu Leu Glu Lys Trp Leu Asn Asp Ala Glu Thr Met Ser
            260                 265                 270

Val Asp Ser Ser Leu Pro Ser Pro Asn Gln Leu Ser Ser Pro Ser Leu
        275                 280                 285

Gly Phe Asp Gly Leu Pro Gly Arg Arg Arg Lys Lys Arg Thr Ser Ile
    290                 295                 300

Glu Thr Asn Val Arg Phe Ala Leu Glu Lys Ser Phe Leu Ala Asn Gln
305                 310                 315                 320

Lys Pro Thr Ser Glu Glu Ile Leu Leu Ile Ala Glu Gln Leu His Met
                325                 330                 335

Glu Lys Glu Val Ile Arg Val Trp Phe Cys Asn Arg Arg Gln Lys Glu
            340                 345                 350

Lys Arg Ile Asn Pro Cys Ser Ala Ala Pro Met Leu Pro Ser Pro Gly
        355                 360                 365

Lys Pro Ala Ser Tyr Ser Pro His Met Val Thr Pro Gln Gly Gly Ala
    370                 375                 380

Gly Thr Leu Pro Leu Ser Gln Ala Ser Ser Ser Leu Ser Thr Thr Val
385                 390                 395                 400

Thr Thr Leu Ser Ser Ala Val Gly Thr Leu His Pro Ser Arg Thr Ala
                405                 410                 415

Gly Gly Gly Gly Gly Gly Gly Gly Ala Ala Pro Pro Leu Asn Ser Ile
            420                 425                 430

Pro Ser Val Thr Pro Pro Pro Pro Ala Thr Thr Asn Ser Thr Asn Pro
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Ser Thr
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Gln Thr Gln Ala Pro Pro Gly Glu Val Ala Gln Arg Cys Arg Asp Tyr
        35                  40                  45

Val Cys Gly Leu Lys Pro Ala Gln Pro Gln Pro Ala Glu Gln Pro Gln
    50                  55                  60

Pro Gly Phe Arg Ala Cys Met Pro Glu Thr Gln Glu Glu Asp Gln Met
65                  70                  75                  80

Arg Asp Lys Lys Pro Leu Arg Leu Arg Glu Glu Phe Ser Ser Glu Pro
                85                  90                  95

Glu Ala Tyr Leu Arg Gly Asp Pro Ala Asp Arg Arg Ala Ala Ala His
            100                 105                 110

Gly Glu Gly Ser Asp Pro Arg Leu Val Leu Gln Pro Ala Pro Glu Gly
        115                 120                 125

Glu Thr His Gln Pro Leu Gln Cys Gly Pro His Ala Ala Gln Pro Arg
    130                 135                 140

Glu Ala Gly Gln Leu Gln Pro Pro Tyr Gly His Thr Pro Ala Gly Arg
145                 150                 155                 160

Gly Asp Leu Thr Val Val Pro Ser Phe Gln Gln Ser Glu His Asn Ser
                165                 170                 175

Tyr Tyr Leu Ile Leu Ser Cys Gly Asp Ala Pro Pro Gln Pro Asp Ser
            180                 185                 190

Asn Met Gly Trp Gly Met Gly Arg Gly Cys Ala Pro Pro Gln Phe His
        195                 200                 205

Pro Leu Cys His Ser Pro Thr Pro Gly His Asn Gln Gln His Lys Pro
    210                 215                 220

Gln Pro Ser Arg Gln Pro Leu Gly Tyr Met Leu Val Ala Pro Glu Pro
225                 230                 235                 240

Gln Asn Gly Val Ser Gly Cys Thr Trp Glu Ala Val Gly Arg Ser Arg
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Val Ala Ala Ala Ser Arg Val Gly Ser Gly Thr Pro Val Met Leu Ala
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Thr Gly Pro Gly Leu Trp Trp Asn Pro Ala Pro Tyr Gln Pro
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Gly Pro Asn Pro Leu Val Glu Pro Cys Pro Leu Pro Ala Leu Met Ala
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Ala Trp
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Leu Ile Ala Glu Gln Leu His Met Glu Lys Glu Val Ile Arg Val Trp
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Phe Ile Asn Lys Arg Met Arg Ser Lys
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Asn Leu Met Asn Thr Ser Leu Ser Arg Ile Gln Ile Lys Asn Trp Val
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Ser Asn Arg Arg Arg Lys Glu Lys Thr Ile Thr
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            20                  25                  30

Lys Ile Ser Asp Leu Ile Gly Met Pro Glu Lys Asn Val Arg Ile Trp
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20 25 30

Lys Leu Ala Leu Glu Thr Gly Leu Ser Met Arg Val Ile Gln Val Trp
35 40 45

Phe Gln Asn Arg Arg Ser Lys Glu Arg Arg Leu Lys
50 55 60

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35 40 45

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Gln Leu Ser Ser Glu Leu Gly Leu Asn Glu Ala Gln Ile Lys Ile Trp
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Val Arg Phe Leu Pro Ser Ile Lys Gly Gly Glu Gly Gly Gly Pro Trp
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Phe Ile Ser Leu His Cys Val Thr Glu Val Leu Leu Leu Phe Val Asn
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Ile Leu Asn Tyr Pro Ser Phe Ser Ser Leu His Arg Ala Val Val Arg
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cca ctg gag gga att ccc cgt ctc gga acg ccg ccg cca gca cca gca 1387
Pro Leu Glu Gly Ile Pro Arg Leu Gly Thr Pro Pro Pro Ala Pro Ala
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Ala Ala Pro Arg Arg Pro Ala Ser Ser Ala Ala Met Leu Ser Ala His
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gaa cgg caa ggc ggg ctg ctg ccg ccc gac gac cgc cac gac agc ggg 1531
Glu Arg Gln Gly Gly Leu Leu Pro Pro Asp Asp Arg His Asp Ser Gly
105 110 115

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Leu Asp Ser Met Lys Glu Glu Glu Tyr Arg Gln Leu Val Arg Glu Leu
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Glu Asp Ile Arg Leu Gln Pro Arg Glu Pro Pro Ala Arg Pro His Ala
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tgg gcc cag cag ctc acc gag gac ggc gac act ttt ctc cac ttg gcg     1675
Trp Ala Gln Gln Leu Thr Glu Asp Gly Asp Thr Phe Leu His Leu Ala
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atc att cac gag gaa aag gcc ctg agc ctg gag gtg atc cgg cag gcc     1723
Ile Ile His Glu Glu Lys Ala Leu Ser Leu Glu Val Ile Arg Gln Ala
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Ala Gly Asp Ala Ala Phe Leu Asn Phe Gln Asn Asn Leu Ser Gln Thr
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ccg ctc cac ctg gcg gtg atc acg gac cag gcc gaa atc gcc gag cac     1819
Pro Leu His Leu Ala Val Ile Thr Asp Gln Ala Glu Ile Ala Glu His
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acc ccg ctc cac atc gcc tgc cag cag ggc tcg ctc cgc agc gtc agt     1915
Thr Pro Leu His Ile Ala Cys Gln Gln Gly Ser Leu Arg Ser Val Ser
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gtc ctc acg cag cac tgc cag ccc cac cac ctc ctc gcc gtc ctg cag     1963
Val Leu Thr Gln His Cys Gln Pro His His Leu Leu Ala Val Leu Gln
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gcc acc aac tac aac ggc cat aca tgt ctc cat ttg gca tct att caa     2011
Ala Thr Asn Tyr Asn Gly His Thr Cys Leu His Leu Ala Ser Ile Gln
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gga tac ctg gct gtt gtc gaa tac ctg ctg tcc tta gga gca gat gta     2059
Gly Tyr Leu Ala Val Val Glu Tyr Leu Leu Ser Leu Gly Ala Asp Val
280                 285                 290                 295
aat gct cag gag cca tgc aat ggg aga aca gca cta cac ttg gcc gta     2107
Asn Ala Gln Glu Pro Cys Asn Gly Arg Thr Ala Leu His Leu Ala Val
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gac ctt cag aac tca gac ctg gtg tca ctt ctg gtg aaa cac ggg cca     2155
Asp Leu Gln Asn Ser Asp Leu Val Ser Leu Leu Val Lys His Gly Pro
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gat gtg aac aaa gtg acc tac cag ggc tac tcc cca tac cag ctt aca     2203
Asp Val Asn Lys Val Thr Tyr Gln Gly Tyr Ser Pro Tyr Gln Leu Thr
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tgg gca gag aca acg cca gca tac agg agc agc tga agctgctgac          2249
Trp Ala Glu Thr Thr Pro Ala Tyr Arg Ser Ser
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Val Leu Leu Leu Phe Val Asn Ile Leu Asn Tyr Pro Ser Phe Ser Ser
        35                  40                  45

Leu His Arg Ala Val Val Arg Pro Leu Glu Gly Ile Pro Arg Leu Gly
    50                  55                  60

Thr Pro Pro Pro Ala Pro Ala Ala Ala Pro Arg Arg Pro Ala Ser Ser
65                  70                  75                  80

Ala Ala Met Leu Ser Ala His Arg Pro Ala Glu Pro Pro Ala Val Glu
                85                  90                  95

Gly Cys Glu Pro Pro Arg Lys Glu Arg Gln Gly Gly Leu Leu Pro Pro
            100                 105                 110

Asp Asp Arg His Asp Ser Gly Leu Asp Ser Met Lys Glu Glu Glu Tyr
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Arg Gln Leu Val Arg Glu Leu Glu Asp Ile Arg Leu Gln Pro Arg Glu
    130                 135                 140

Pro Pro Ala Arg Pro His Ala Trp Ala Gln Gln Leu Thr Glu Asp Gly
145                 150                 155                 160

Asp Thr Phe Leu His Leu Ala Ile Ile His Glu Glu Lys Ala Leu Ser
                165                 170                 175

Leu Glu Val Ile Arg Gln Ala Ala Gly Asp Ala Ala Phe Leu Asn Phe
            180                 185                 190

Gln Asn Asn Leu Ser Gln Thr Pro Leu His Leu Ala Val Ile Thr Asp
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Gln Ala Glu Ile Ala Glu His Leu Leu Lys Ala Gly Cys Asp Leu Asp
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Val Arg Asp Phe Arg Gly Asn Thr Pro Leu His Ile Ala Cys Gln Gln
225                 230                 235                 240

Gly Ser Leu Arg Ser Val Ser Val Leu Thr Gln His Cys Gln Pro His
                245                 250                 255

His Leu Leu Ala Val Leu Gln Ala Thr Asn Tyr Asn Gly His Thr Cys
            260                 265                 270

Leu His Leu Ala Ser Ile Gln Gly Tyr Leu Ala Val Val Glu Tyr Leu
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Leu Ser Leu Gly Ala Asp Val Asn Ala Gln Glu Pro Cys Asn Gly Arg
    290                 295                 300

Thr Ala Leu His Leu Ala Val Asp Leu Gln Asn Ser Asp Leu Val Ser
305                 310                 315                 320

Leu Leu Val Lys His Gly Pro Asp Val Asn Lys Val Thr Tyr Gln Gly
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Tyr Ser Pro Tyr Gln Leu Thr Trp Ala Glu Thr Thr Pro Ala Tyr Arg
            340                 345                 350

Ser Ser
```